REMARKS

Applicant thanks the Examiner for acknowledgment of a claim for foreign priority under 35 U.S.C. §119 and indication that certified copies of the priority documents have been received in the parent application with Serial No.: 09/916,529.

The specification has been objected to for the following informalities: that the reference number 8b, designating a first magnetic layer, is not consistently used through the embodiment description and analogously the reference 66a, distinguishing a magneto-resistant effect head of the eight embodiment as a whole, is not used consistently. Additionally, the Examiner objected that the reference 66a is not presented on the drawings. Responding to these objections the specification has been amended in order to provide consistency of usage of the reference numerals 8b and 66a.

In addition, Figure 64 has been also amended in order to show a structure designated with numeral 66a which is a magneto-resistant effect head of the eight embodiment as a whole. Also, it has been noted that the reference 36a is not shown in Figure 63, as described in the specification on page 60, line 17. So, the reference 36a, designating a magneto-resistance effect element, was added to Figure 63. No new matter has been introduced by this amendment. The Examiner is respectfully requested to replace the formal figures 63, 64, filed on March 17, 2004, with currently provided "Replacement Sheets" of corrected Figures 63 and 64.

The present application is a divisional application of U.S. Application Serial Number 09/916,529 filed on July 30, 2001. According to the election after the restriction requirement and the Examiner's comments, claims 15 to 24, and 26 are currently active in the application. The claimed subject matter corresponds to Figures 58 to 64 and pages 59 - 65 of the specification. The indication that the subject matter of claims 20 and 24 are drawn to the allowable subject matter is noted with appreciation. By the present amendment no claim amendment has been

presented. The Examiner is respectfully requested to reconsider the application in a view of the following discussion.

Claims 15-19, 21-23 and 26 have been rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent 6,266,218 to Carey et al. This rejection is respectfully traversed for the reason that the patent to Carey et al. fails to show or suggest the claimed invention.

The present invention relates to a magneto-resistance effect element which reduces noise in a read signal and provides a good signal-to-noise (S/N) ratio by preventing the sense current from flowing into the vertical bias layer. Constructively, in order to provide a magneto-resistance effect element with such characteristics, the free layer is made greater in length than the fixed layer in the direction of magnetic field applied by the vertical bias layer, thereby allowing only the free layer to be disposed near the vertical layer. This allows the vertical bias layer to effectively apply a vertical bias magnetic field to the free layer and makes it possible to prevent leakage of a sense current from the fixed layer to the vertical bias layer. Therefore, almost all the sense current flows through the non-magnetic layer making it possible to reduce noise in the read signal and improve S/N ratio.

The primary reference to Carey et al. discloses a magnetic sensor with antiferromagnetically exchange-coupled layers for longitudinal biasing wherein a longitudinal bias structure is placed adjacent to a ferromagnetic free layer or a sense layer which is responsive to an external magnetic field and belongs to a magnetic sensor. According to Carey et al. the longitudinal bias structure is built up of a top ferromagnetic bias layer of first thickness t_1 having a first magnetic moment M_1 and a second bottom ferromagnetic bias layer of second thickness t_2 with a second magnetic moment M_2 which is anti-parallel to the first magnetic moment M_1 of the top ferromagnetic bias layer. There is also an exchange-coupling layer disposed between the top and bottom bias layers. In this configuration the top ferromagnetic bias layer and the bottom ferromagnetic bias layer are antiferromagnetically coupled by the exchange-coupling layer and the

remnant magnetization thickness product of the bias structure is low and equal to M_1t_1-M_2t_2.

In making the rejection the Examiner inaccurately reads Applicant's claims on the patent to Carey et al., but it should be respectfully noted that the structure shown by Carey et al. is very different from the claimed device. For instance, the Examiner refers to structure designated by Carey et al. with reference number 134 as a lower conductive layer on line 5, page 5, of the Office Action and as a vertical bias layer on page 5, line 16, of the Office Action. The Examiner mistakenly refers to a double layered bias structure of the reference as analogous to first and second magnetic layers of the claimed invention. This is not correct, the Applicant shows a first magnetic layer 8b, second magnetic layer 12 and vertical bias layer 2b separately. (See Figure 64 of the present invention) There is no information in the Applicant's disclosure that bias layer is used like a first or second magnetic layers or vice versa. It is respectfully submitted that claim 15 is clearly defines over the reference to Carey et al.: "A magneto-resistance effect element comprising:

a lower conductive layer;

a fixed layer provided on the lower conductive layer and having a pinned orientation of magnetization;

a first non-magnetic layer provided on the fixed layer;

a free layer provided on the first non-magnetic layer and having an orientation of magnetization varied by a magnetic field applied thereto;

a first magnetic layer provided on the free layer and magnetically coupled to the free layer;

a second magnetic layer provided on the first magnetic layer and magnetically coupled to the first magnetic layer; and

a vertical bias layer for applying a magnetic field to said first and second magnetic layers, and a sense current for detecting a change in electrical resistance of said first non-magnetic layer flows substantially in perpendicular relation to

said first non-magnetic layer." (Emphasis added) Applicant recites in claim 15 elements of structure which are not shown by Carey et al. Carey et al. does not show two magnetic layers and a separate bias layer. Please also note that the claim 15 the only independent claim in the active set and the rest of the claims directly or indirectly depend from it. Therefore, it is that all dependent claims are allowable.

It is respectfully submitted that according to MPEP § 2131 in order to anticipate a claim, "THE REFERENCE MUST TEACH EVERY ELEMENT IN THE CLAIM". Furthermore, the MPEP, citing *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1051, 1053 (Fed. Cir. 1987), states "[t]he identical invention must be shown in as complete detail as is contained in the ...claim" (emphasis added).

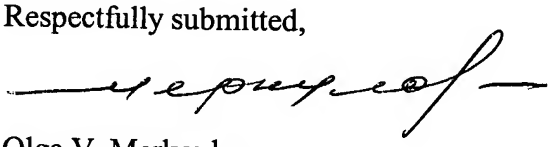
Here, none of the structural limitations highlighted in Applicant's claims above are taught or suggested by Carey et al. It is therefore respectfully submitted that the rejections to the claims are improper under 35 U.S.C. §102 as Carey et al. cannot anticipate the rejected claims since it does not "teach the identical invention". Further, since the above limitations are not taught or suggested, Carey et al. cannot be used to support a *prima facie* obviousness rejection under 35 U.S.C. §103. Based on the above discussion with reference to the MPEP guidelines, it is respectfully requested that the rejection based on 35 U.S. C. §102 be withdrawn. This being the only rejection to claims 15-19, 21-23 and 26 it is respectfully requested that these claims be allowed .

In view of the foregoing, it is respectfully requested that the application be reconsidered, that claims 15 to 19, 21 to 23 be allowed with claims 20 and 24, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041 (Whitham, Curtis & Christofferson, P.C.).

Respectfully submitted,



Olga V. Merkoulova
Reg. No. 48,757

Whitham, Curtis & Christofferson, P.C.
11491 Sunset Hills Road, Suite 340
Reston, VA 20190
Tel. (703) 787-9400
Fax. (703) 787-7557
Customer No.: 30743

Amendments to the Drawings:

Responding to the Examiner's objection, Figure 64 has been corrected by this amendment in order to add the reference numeral 66a, showing a whole structure of a magneto-resistance effect head of the eighth embodiment, described on pages 59 to 65 of the specification. Additionally, the reference numeral 36a, designating a magneto-resistance effect element, has been added to Figure 63 in accordance with the specification description on page 60, line 17. This paper is accompanied with a "Replacement Sheet", showing corrected Figures 63 and 64 and marked up in red "Sheet Showing Changes". The Examiner is respectfully requested to replace a formal drawing of Figures 63, 64, filed on March 17, 2004, with the currently provided "Replacement Sheet".

ANNOTATED MARKED-UP DRAWINGS

FIG. 63

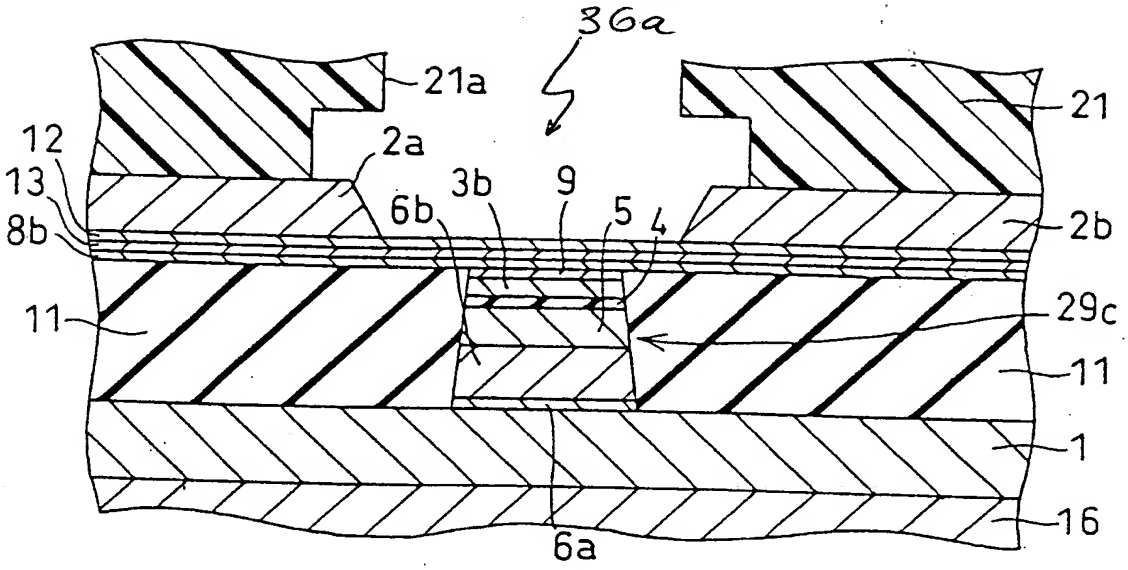


FIG. 64